

One Team

One Fight

*Air Reserve Component civil engineers
build up an OEF Location*

by Maj George Runkle
628th CEF

When the Air Force Reserve assumed civil engineering responsibilities at a forward operating location in November 2000 as part of Aerospace Expeditionary Force Cycle 2, it was a small, peacetime desert operation. By the time the commitment ended in February 2002, the forward location had been transformed into a bustling wartime base near the front line in America's war on terrorism.

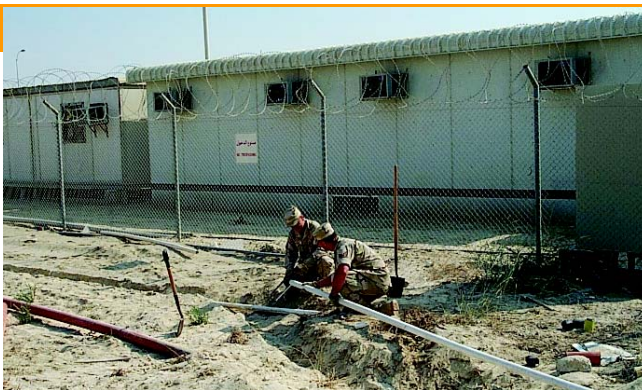
Sixteen Reserve units, along with units from the Air National Guard, provided CE services during that time. Together, they provided a complete base civil engineer organization, including fire protection, readiness, power production, engineering and operations.

9/11 Changed Everything

After Sept. 11 the mission at our location changed drastically, and more personnel were brought in. Higher demand for water, sewer and electricity strained the basic infrastructure of the camp as these additional people and their aircraft were bedded down.

A team from the 49th Civil Engineer Squadron, Holloman Air Force Base, NM, deployed in October to provide additional manpower. They stayed with the Reserve and Guard civil engineers through the remainder of the cycle, helping erect additional tents and construct the facilities needed for the new missions.

As the footprint of the camp expanded, host nation facilities, such as anti-aircraft artillery emplacements, were relocated. Many incoming personnel were accommodated in a new section of the camp, which required new tents and facilities such as latrines, showers and recreational areas. As more aircraft arrived, hangars loaned by the host nation were modified to provide temporary shops and offices. A complete power generation and distribution system was also installed.



Reserve and Guard civil engineers worked to expand utility systems as the base grew to accommodate new missions and personnel following Sept. 11. (Photos courtesy HQ AFRC)

Since the base had fairly frequent water outages, additional water storage facilities were constructed to allow continued function when the outages occurred. Some of the sewage pump stations were not able to handle the additional loads. On New Year's Eve, plumbers found themselves standing in sewage working to fix a pump that went out at the worst possible time.

Extensive use was made of modular facilities in constructing additions to the main camp. In the Arabian peninsula, modular buildings have been used extensively in the oil camps and as temporary facilities for companies setting up in the area. Accordingly, there were several manufacturers available who could deliver, assemble and erect the buildings on site quickly. These companies had their own in-house engineers perform the detailed part of the design work, leaving military engineers available for other projects.

To our advantage, the host nation showed phenomenal cooperation. Our fire department typically trained with their base fire department, and in one rotation practiced together on live burns. The host nation also provided engineering input as additional facilities were planned. They helped with where to buy water for construction purposes, the best haul routes and other subjects where local knowledge was invaluable.

Things are Different Here

The greatest challenge was to provide for a self-contained base in an environment that was not normal to the everyday Reserve and Guard experience. The Reserve and Guard engineers had to learn how to deal with local conditions and provide solutions with few of the resources available back home. The usual solutions employed at home wouldn't work at our forward location — everything was just a bit different here.

Unlike most bases, about half the power used was generated on base; therefore, generator maintenance was critical. Also, generators had to be rotated out as required for depot services. Since generators were the primary source of power for much of the installation, outages were unacceptable.

Most bases in the continental United States have architect-engineer contracts in place for design services. Our deployed CEs didn't have that luxury in most cases. Almost all design work was done in the engineering shop as a joint effort between civilian contract personnel with Readiness Management Support (the Air Force Contract Augmentation Program contractor) and deployed personnel. If the need arose, there was "reach back" capability for further design services in the United States. However, time was usually of such importance that almost all design work was done on base.



Civil engineers found the most efficient way to erect buildings in that area of the world was to purchase modular buildings and have them delivered to the site.

Because of the compact area we occupied and the large number of personnel in tents, any kind of fire in camp could cause serious damage. Firefighters put a lot of effort into prevention. They made sure smoke detectors were in each building and tent and that each detector was operable. They vigilantly ensured fire extinguishers were properly maintained and charged. Any kind of alarm brought an extremely quick response to keep situations from getting out of control.

Operations personnel maintained aging Harvest Falcon equipment that had been constantly hammered by the strong sun, high heat and dust in the desert environment. Tents were dry-rotting, environmental control units had to be constantly maintained and replaced, and the electrical distribution system needed constant monitoring.

Plumbers had an especially difficult job at times maintaining and repairing the base's water distribution and sewage systems. Materials were mostly in metric measurements, so workers had to think of pipe in millimeters, not inches. Also, lumber was imported (obviously) and was mostly hardwood — probably luan. This was difficult to work with because it was harder to nail and saw.

Finally, there were the usual difficulties of working in a desert environment. The team was careful to avoid heat injuries and dehydration. A certain amount of time was allowed for acclimation, and personnel worked during cooler periods of the day. In addition, the blowing dust and sand caused constant problems by getting into equipment, clogging filters and just being a general nuisance.

Lessons Learned

The first lesson learned is also the most obvious one: the importance of Prime BEEF training cannot be overstated nor overemphasized. Deploying engineers must be extremely familiar with the Harvest Falcon equipment set. They must know what equipment is in the set and its capabilities and limitations. They must be able to set up the equipment without hesitation and be very proficient in its maintenance. A war zone or forward operating area is not the place to get hands-on training with bare base equipment for the first time.

Early feedback from AEF deployments convinced the Reserve Command civil engineer leadership that individual, “hands-on,” contingency training with some key bare base assets was lacking throughout the command. Accordingly, they have worked diligently for the past year to consolidate three former Reserve Specialty Training Locations at Dobbins Air Reserve Base, GA, into a new Expeditionary Combat Support Training and Certification Center (TCC), which began operations this spring.

TCC bridges the gap between home station training and war zone requirements by ensuring civil engineers have opportunities to train on bare base assets not generally found at many stateside bases. Moreover, individual training at TCC will complement Silver Flag team training and provide the best Air Force in the world with the best civil engineers.

Other lessons learned: power production personnel need to be very well trained in the operation and maintenance of an array of generators, since commercial power often isn't available. Engineering personnel should be acquainted with the requirements for base layout, since even on an existing base additional personnel may be added with little notice.

Officers should be familiar with the Harvest Falcon kit; they should also be able to work outside their discipline. For example, a civil engineer needs to be at least familiar with power distribution. Electrical and mechanical engineers need to have a working knowledge of requirements for pavements and structures. Flexibility is extremely important.

Finally, Harvest Falcon material is often in short supply, and building on base can be time consuming because of the remoteness of the site and difficult entry procedures. It is best to use commercially available materials for most of the work on base, and the most efficient way to erect buildings in that area of the world is to purchase modular ones and have them delivered to the site.

Total Force Success

Our experience shows that Air Force Reserve civil engineers and their counterparts in the Air National Guard are vital parts of the Total Force. It wasn't possible to distinguish between active duty, Reserve or Guard civil engineers at our location. They formed one team and took on one fight.

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